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SCALP AND HAIR COSMETIC MATERIAL

Inventors:
Yoshiharu Tsuji
Shiseido Co., Ltd.
The First Research Center
1050 Niihane-cho, Kohoku-ku,
Yokohama-shi, Kanagawa-ken

Shunsuke Takeda
Shiseido Co., Ltd.
The First Research Center
1050 Niihane-cho, Kohoku-ku,
Yokohama-shi, Kanagawa-ken

Masaaki Uemura
Shiseido Co., Ltd.
The First Research Center
1050 Niihane-cho, Kohoku-ku,
Yokohama-shi, Kanagawa-ken

Applicant:
000001959
Shiseido Co., Ltd.
7-5-5 Ginza, Chuo-ku, Tokyo

Agent:

Yoko Hasegawa, patent attorney

Abstract

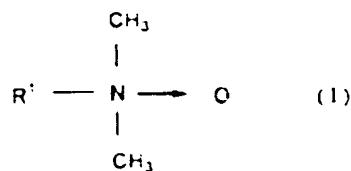
Objective

To provide a scalp and hair cosmetic material that has excellent hair loss preventing effect or hair growing effect, and scalp dandruff and itch preventing effect, and that is also excellent in safety.

Constitution

A scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[Structure 1]

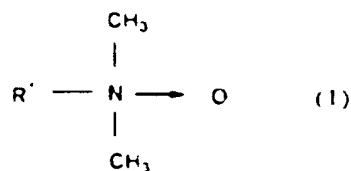


(where R' represents a C₁₀₋₃₆ alkyl group or alkenyl group), and a hair follicle activator.

Claims

1. A scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[Structure 1]



(where R' represents a C₁₀₋₃₆ alkyl group or alkenyl group), and a hair follicle activator.

2. The scalp and hair cosmetic material described in Claim 1, in which the amine oxide is one or more selected from among N,N-dimethyl-2-decyl tetradecyl amine oxide, oleyl dimethyl amine oxide, and isostearyl dimethyl amine oxide.

3. The scalp and hair cosmetic material described in Claim 2, in which the amine oxide is N,N-dimethyl-2-decyl tetradecyl amine oxide.

4. The scalp and hair cosmetic material described in Claim 2, in which the amine oxide is one or more of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide.

5. The scalp and hair cosmetic material described in any of Claims 1-4, in which the hair follicle activator is one or more selected from among nicotinamide, vitamin B₆ and its derivatives, biotin, pantothenic acid and its derivatives, cephalanthin, mononitroguaiaacol, mononitroguaiaacol sodium salt, 6-benzylaminopurine, diisopropylamine dichloroacetic acid, hinokitiol, and pentadecanoic acid monoglyceride.

6. The scalp and hair cosmetic material described in any of Claims 1-5, in which the amine oxide is contained at 0.0001-20 wt%.

7. The scalp and hair cosmetic material described in any of Claims 1-6, in which the hair follicle activator is contained at 0.001-5 wt%.

Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention relates to a scalp and hair cosmetic material. More specifically, it relates to a scalp and hair cosmetic material that has excellent hair growing effect, hair loss preventing effect, and scalp dandruff and itch preventing effect, and that is also excellent in safety.

[0002]

Prior art

In the modern aging and stressed society, baldness or hair loss, thinning of hair, dandruff and itching of the scalp, and a variety of other problems of the scalp and hair have increased. The demand for scalp and hair cosmetic materials corresponding to these problems has increased drastically. Therefore, research and development of a variety of products corresponding to these problems have been conducted.

[0003]

For scalp and hair, structurally, the outer skin of the scalp (skin) is depressed to the dermis side to form a lumen, and becomes a follicle. A sebaceous gland is connected to the top of the follicle. Hair is present inside this follicle. It is divided into the hair shaft as a portion appearing on the skin (scalp) surface, and the hair root penetrating into the skin inside. The hair follows a cycle called "hair period" that consists of the growth period, the regression period, and the cessation period. Growth and detachment are repeated according to this cycle. It is said that the follicle relates to the growth period of this hair period.

[0004]

As causes of baldness or hair loss, hair thinning, dandruff or itching of the scalp, and so on, the activation of male hormones in the sebaceous glands of the hair root, excessive sebaceous secretion, formation of lipid peroxides, a decrease in the amount of blood flow to the follicles, stress, and so on can be mentioned. In the growth of healthy and beautiful hair, if a sufficient nutrient supply cannot be carried out to the follicle, this will become a cause of thin hair. A decrease in the amount of blood flow to the follicle will lead to malnutrition and a reduction in the waste excreting function.

[0005]

From this viewpoint, an improvement of the turnover of the horny layers of the scalp, excessive sebaceous secretion and so on will at least improve the reduction in the blood flow function to the scalp. At the same time, this is presumably indispensable to the solution of scalp and hair problems.

[0006]

In general, the conventional hair cosmetic materials are mostly materials obtained by blending of substances that eliminate the major factors believed to be the causes of baldness or hair loss, or that have an alleviating effect. For example, materials obtained by blending of vitamin B, vitamin E or other vitamins, serine, methionine or other amino acids, Japanese green gentian extract, acetylcholine derivatives or other blood vessel dilating agents, saikon [transliteration] extract or other anti-inflammatory agents, estradiol or other female hormones, cephalanthin or other skin function promoting-agents, or the like have been used in the prevention of treatment of baldness, hair loss, or hair thinning.

[0007]

Problems to be solved by the invention

However, in order to achieve a sufficient effectiveness, it is necessary to blend an amount above a certain level in the hair cosmetic material obtained by blending these components. On the other hand, if these components are blended in large amounts, there may be cases in which an uncomfortable irritating feeling or reddening is observed. Their amounts of blending have restrictions. Therefore, in the prevention of hair thinning, it is difficult to achieve effectiveness to an extent of sufficient satisfaction while usage characteristics and safety are being satisfied.

[0008]

In view of that described previously, the present invention has an objective to provide a scalp and hair cosmetic material that has excellent hair loss preventing effect, hair growing effect, and scalp dandruff or itch preventing effect, and that is excellent in safety.

[0009]

Means to solve the problems

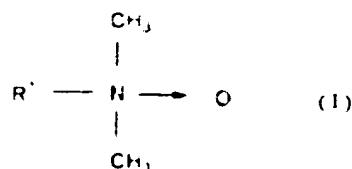
As a result of zealous investigations in order to solve the problems described previously, the present inventors have discovered that a scalp and hair cosmetic material having excellent hair loss preventing effect, hair growing effect, and scalp dandruff or itch preventing effect and excellent in safety can be provided by blending a specific amine oxide and a follicle activator in combination.

[0010]

In other words, the present invention is a scalp and hair cosmetic material containing an amine oxide represented by the following general formula (I)

[0011]

[Structure 2]



[0012]

(where R' represents a $\text{C}_{10\text{-}36}$ alkyl group or alkenyl group), and a hair follicle activator.

[0013]

Embodiment of the invention

The present invention will be described in detail in the following.

[0014]

The amine oxide that can be used in the present invention is represented by the general formula (I) given previously. In the formula, R' represents a $\text{C}_{10\text{-}36}$ alkyl group or alkenyl group. However, the number of carbon atoms mentioned previously is preferably 12-24. As such amine

oxides, specifically, one or more selected from among N N-dimethyl-2-decyl tetradecyl amine oxide, oleyl dimethyl amine oxide, and isostearyl dimethyl amine oxide can be used preferably. Among these, oleyl dimethyl amine oxide can be used especially preferably. Furthermore, one or more of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide can be used preferably [sic].

[0015]

The amount of blending of the amine oxide mentioned previously is preferably 0.0001-20 wt%, especially 0.05-5 wt%, in the total amount of the scalp and hair cosmetic material. If this is less than 0.0001 wt%, it will be difficult to obtain sufficient effects for hair loss prevention, hair growth, and scalp dandruff or itch prevention. On the other hand, if this exceeds 20 wt%, it will be undesirable since a trend of rendering an uncomfortable sticky feeling or an irritating feeling to the scalp during use will be observed.

[0016]

As the follicle activators that can be used in the present invention, there are no special restrictions as long as they are substances that activate follicles. In particular, nicotinamide, vitamin B₆ and its derivatives (such as pyridoxine dioctanoate and so on), biotin, pantothenic acid and its derivatives (such as pantothenyl ethyl ether or the like), cephalanthin, mononitroguaiaacol, mononitroguaiaacol sodium salt, 6-benzylaminopurine, diisopropylamine dichloroacetic acid, hinokitiol, and pentadecanoic acid monoglyceride and so on can be used preferably. One or more of the follicle activators can be used.

[0017]

The amount of blending of the follicle activator is preferably 0.001-5 wt%, especially 0.01-2 wt%, in the total amount of the scalp and hair cosmetic material. If this is less than 0.001 wt%, it will be difficult to obtain sufficient effects for hair loss prevention, hair growth, and scalp dandruff or itch prevention. On the other hand, if this exceeds 5 wt%, it will be undesirable since an uncomfortable irritating feeling of the scalp during use of the preparation will be observed.

[0018]

In the scalp and hair cosmetic material of the present invention, in addition to the necessary components mentioned previously, it is also possible to blend, if necessary, an oily component, a surfactant, an antioxidant, an ultraviolet absorber, a moisturizer, a perfume, a dye, a pigment, a coloring matter, preservatives, vitamins, hormones, a deodorizer, a pH adjusting

agent, a binder, and other components used in common scalp and hair cosmetic materials, in a range without damaging the effectiveness of the present invention.

[0019]

The scalp and hair cosmetic material of the present invention may be any of a liquid, an emulsion, a cream, a gel, an aerosol, or other agent preparations appropriate for external use. It is used in the form of a tonic, a scalp treatment, etc.

[0020]

Application examples

Next, the present invention will be further explained in detail with application examples. However, the present invention is not to be restricted by these application examples. The amounts of blending represent wt% unless specially indicated otherwise.

[0021]

First of all, various test methods and evaluation methods for the hair-growing effectiveness test, the hair loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test used in the present application examples will be explained.

[0022]

Hair-growing effectiveness test

In order to investigate the hair-growing effect of the present invention, a trichogram test was carried out. The test subjects were male, and there were 10 persons in each group of comparative examples and application examples. The test period (the sample coating period) was four months. During the period, the sample was coated at 2-4 mL on the scalp twice a day. Immediately before the initiation of the sample coating and after the completion of the sample-coating period, 50 pieces of final hair were removed at random from the top of the head of each of the test subjects. The hair roots of the hair removed were observed under a microscope. From the state of the hair roots, the hair-root cessation period ratio (%) was calculated. The extent of an increase or a decrease in the hair-root cessation period ratio (%) was evaluated according to the following criteria:

Judging criteria

Remarkable effectiveness: The hair-root cessation period ratio was decreased by at least 30%.

Effectiveness: The hair-root cessation period ratio was decreased by at least 20%.

Weak effectiveness: The hair-root cessation period ratio was decreased by at least 10%.

No effectiveness: The hair-root cessation period ratio was decreased by less than 10% or increased.

Evaluation of hair-growing effectiveness

The cases in which the ratio of the test subjects with evaluations of "effectiveness" or better is at least 50% according to the evaluation criteria mentioned previously are effective. The cases outside this are ineffective.

[0023]

Hair-loss preventing effectiveness test

This was measured with a change in the number of pieces of hair lost due to hair washing before and after the sample use. The test subjects were male, and there were 10 persons in each group of comparative examples and application examples. The test period was six months. The first two-month period of the early period was the period without the sample coating. The four-month period in the later period was the sample-coating period. The sample was coated on the scalp twice a day, at 2-4 mL per application. During the test period, hair was washed once a day, and the lost hair was recovered. The number of pieces of final hair was counted on a weekly basis. The evaluation of the number of hairs lost was carried out by the average value of the final week in the early period and the average value of the final week in the later period.

Evaluation criteria

--: Remarkable effectiveness with a decrease in the number of pieces of lost hair by at least 70 was observed.

-: Considerable effectiveness with a decrease in the number of pieces of lost hair by at least 40 was observed.

±: Slight effectiveness with a decrease in the number of pieces of lost hair by at least 10 was observed.

-: No effectiveness with a decrease in the number of pieces of lost hair by less than 10 or an increase in the number of pieces of lost hair was observed.

Evaluation of the hair-loss preventing effectiveness

The cases in which the ratio of the test subjects with evaluations of "+" or better is at least 50% according to the evaluation criteria mentioned previously are effective. The cases outside this are ineffective.

[0024]

Dandruff and itch preventing effectiveness test

With male subjects especially complaining about dandruff and itching, the test (the sample coating) was carried out on 10 persons in each of the groups in the comparative examples and application examples. After the test, dandruff and itching were investigated. They were evaluated by the amount of protein in the dandruff and the extent of the itching. The sample coating period was three months. During this period, hair was washed once a day with a shampoo having no drug agents added. The sample was coated on the scalp at 2-4 mL at twice a day.

[0025]

After the completion of the test, scalp dandruff was collected with a suction apparatus from the test subjects before hair washing. The amount of protein in the dandruff was measured.

[0026]

Furthermore, the extent of itching of the scalp was expressed by the following scores from each of the test subjects.

Scores of itch

- 3: Strong itching
- 2: Itching
- 1: Slight itching
- 0: No itching

[0027]

Comparative Examples 1-12 and Application Examples 1-12

In the composition shown in Tables 1-4, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved in 95% ethanol. Furthermore, the follicle activator, dipropylene glycol, cured castor oil ethylene oxide (40 mol) adduct, succinic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was added to purified water and dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0028]

Table 1

① 配合成分	② 比較例					
	1	2	3	4	5	6
N,N-ジメチル-2-デシルアミド	1.0	-	-	-	-	-
ラデシルアミノオキシド						
ニコチン酸アミド		1.0	-	-	-	-
ビタミンB ₆	-	-	0.5	-	-	-
ビオチン	-	-	-	0.5	-	-
パントテニカルギュアコール	-	-	-	-	1.0	-
セファランチン			-	-	-	0.01
モノニトログアヤコール	-	-	-	-	-	-
モノニトログアヤコールナトリウム			-	-	-	-
6-ベンジルアミノピュアリノール	-	-	-	-	-	-
ジイソプロピルアミノジエチル醇			-	-	-	-
ヒドロキシカル	-	-	-	-	-	-
ベンタガラシ醇セチルザリド	-	-	-	-	-	-
ジイソプロピレングリコール	1.0	1.0	1.0	1.0	1.0	1.0
硬化ヒマシ油ゴナリオキシド (4.0モル)付加物	0.6	0.5	0.6	0.6	0.6	0.6
ヨハク酸	適量	適量	適量	適量	適量	適量
杏仁	適量	適量	適量	適量	適量	適量
色素	適量	適量	適量	適量	適量	適量
9.5%エタノール	55.0	55.0	55.0	55.0	55.0	55.0
総計	66.6	66.6	66.6	66.6	66.6	66.6

Key:

- 1 Blended components
- 2 Comparative Example
- 3 N,N-dimethyl-2-decyl tetradecyl amine oxide
- 4 Nicotinamide
- 5 Vitamin B₆
- 6 Biotin
- 7 Pantothenyl ethyl ether
- 8 Cephalanthin
- 9 Mononitroguaiacol
- 10 Mononitroguaiacol sodium salt
- 11 6-Benzylaminopurine
- 12 Diisopropylamine dichloroacetic acid

Hinokitiol
 Pentadecanoic acid monoglyceride
 Dipropylene glycol
 Cured castor oil ethylene oxide (40 mol) adduct
 Succinic acid
 Perfume
 Coloring matter
 95% Ethanol
 Purified water
 4 Appropriate amount
 5 Balance

[0029]

Table 2

① 配合成分	② 比較例					
	7	8	9	10	11	12
N,N-ジメチル-2-ヘキシノラクトン	-	-	-	-	-	-
カバシルアセト酸ナトリウム	-	-	-	-	-	-
ヒドロキシ酸	-	-	-	-	-	-
ビタミンB ₆	-	-	-	-	-	-
ビタミンE	-	-	-	-	-	-
パルミトール酸アリコール	-	-	-	-	-	-
セスキテルペンオール	-	-	-	-	-	-
セスキテロノラクトン	0.5	-	-	-	-	-
セスキテロノラクトンヨウ化カリウム	-	1.0	-	-	-	-
セベニジンジルマグネシウム	-	-	1.0	-	-	-
ジソジエチルアミノジエチルクロロホスファート	-	-	-	1.0	-	-
ヒドロキシ酸	-	-	-	-	0.6	-
ヒドロゲン酸ナトリウム	-	-	-	-	-	4.0
ヒドロゲンクリロール	1.0	1.0	1.0	1.0	1.0	1.0
異化ヒマシ油オレインオキシド (40モル)付加物	0.6	0.6	0.6	0.6	0.6	0.6
エハーフ	適量	適量	適量	適量	適量	適量
香料	微量	微量	微量	微量	微量	微量
色素	微量	微量	微量	微量	微量	微量
95%エタノール	52.0	54.0	55.0	56.0	57.0	58.0
純水	微量	微量	微量	微量	微量	微量

④

⑤

Key: 1 Blended components
2 Comparative Example
3 N,N-dimethyl-2-decyl tetradecyl amine oxide
Nicotinamide
Vitamin B₆
Biotin
Pantothenyl ethyl ether
Cephalanthin
Mononitroguaiacol
Mononitroguaiacol sodium salt
6-Benzylaminopurine
Diisopropylamine dichloroacetic acid
Hinokitiol
Pentadecanoic acid monoglyceride
Dipropylene glycol
Cured castor oil ethylene oxide (40 mol) adduct
Succinic acid
Perfume
Coloring matter
95% Ethanol
Purified water
4 Appropriate amount
5 Balance

[0030]

Table 3

配合成分 ①	実施例 ②					
	1	2	3	4	5	6
N,N-ジメチル-2-デシルアミンオキシド トライアルアミンオキシド	0.001	10.0	0.01	15.0	0.05	2.0
ビタミンB ₆	0.3	—	—	—	—	—
ビオチン	—	0.1	—	—	—	—
パントテニカルカルボン酸	—	—	—	1.0	—	—
セリカランチン	—	—	—	—	0.003	—
モノニトロガラゴー酸トリウム	—	—	—	—	—	0.5
6-ベンジルaminopurine	—	—	—	—	—	—
ジメチロジメチルアミノスルホン酸	—	—	—	—	—	—
ヒドロキシル	—	—	—	—	—	—
ベンジルガラシン酸ナトリウム	—	—	—	—	—	—
ジイソプロピレンアクリレート	1.0	1.0	1.0	1.0	1.0	1.0
偶化セマツ油エチレングリコリド	0.6	0.6	0.6	0.6	0.6	0.6
(4-C ₁₀ H ₂₀)付加物	—	—	—	—	—	—
ヒドロキシル	適量	適量	適量	適量	適量	適量
ビオ	適量	適量	適量	適量	適量	適量
色素	適量	適量	適量	適量	適量	適量
95%エタノール	55.0	55.0	55.0	55.0	55.0	55.0
はな水	微量	微量	微量	微量	微量	微量

Key:

- Blended components
- Application Example
- N,N-dimethyl-2-decyl tetradecyl amine oxide
- Nicotinamide
- Vitamin B₆
- Biotin
- Pantethenyl ethyl ether
- Cephalanthin
- Mononitroguaiacol
- Mononitroguaiacol sodium salt
- 6-Benzylaminopurine
- Diisopropylamine dichloroacetic acid

Hinokitiol
 Pentadecanoic acid monoglyceride
 Dipropylene glycol
 Cured castor oil ethylene oxide (40 mol) adduct
 Succinic acid
 Perfume
 Coloring matter
 95% Ethanol
 Purified water
 4 Appropriate amount
 5 Balance

[0031]

Table 4

配合成分	(1)	(2) 密度					
		7	8	9	10	11	12
N,N-ジイソチル-2-デカルボキシド	0.1	1.0	0.2	0.6	0.0001	0.3	
カーネリアンマツ油	-	-	-	-	-	-	0.2
ビタミンE	-	-	-	-	-	-	
ビタミンC	-	-	-	-	-	-	
パラヒドロクワニウム塩酸塩	-	-	-	-	-	-	0.2
ヒドロキシエチル				1	-	-	-
セチルヒドロキシエチル	-	-	-	-	-	-	
セチルヒドログリコロキレートトライム	1.3					-	-
モノヘキサノールアブリル	-	2.0	-	-	-	-	
ダイオキソビキニミンジクロロブチル			0.0	1	-	-	-
ヒドロキカル	-	-	-	0.01	-	-	
ベンタダодеシルヒドロキセリト	-	-	-	-	2.0	-	
ジメチジレンジアミン	1.0	1.0	1.0	1.0	1.0	1.0	
硬化ヒマシ油エチレンオキシド (4.0モル)付加物	0.6	0.5	0.6	0.6	0.6	0.6	
ニハク酸	過量	過量	過量	過量	過量	過量	
合計	過量	過量	過量	過量	過量	過量	
色素	過量	過量	過量	過量	過量	過量	
95%エタノール	55.0	55.0	55.0	55.0	55.0	55.0	
純水	純水	純水	純水	純水	純水	純水	

(4)

(5)

Key: 1 Blended components
2 Application Example
3 N,N-dimethyl-2-decyl tetradecyl amine oxide
Nicotinamide
Vitamin B₆
Biotin
Pantothenyl ethyl ether
Cephalanthin
Mononitroguaiaacol
Mononitroguaiaacol sodium salt
6-Benzylaminopurine
Diisopropylamine dichloroacetic acid
Hinokitiol
Pentadecanoic acid monoglyceride
Dipropylene glycol
Cured castor oil ethylene oxide (40 mol) adduct
Succinic acid
Perfume
95% Ethanol
Purified water
4 Appropriate amount
5 Balance

[0032]

By using the samples of Comparative Examples 1-12 and Application Examples 1-12 mentioned previously, the hair-growing effectiveness test, the hair-loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test described previously were carried out, and they were evaluated. The results are shown in Tables 5, 6, and 7.

[0033]

Table 5

群 ①	毛根停止期間の割定 (被験者数 (%)) ②				養毛効果の 評価 ⑦
	顕著な効果 ③	効果あり ④	弱い効果 ⑤	効果なし ⑥	
比較例 1 ⑧	10 ③	30 ④	20 ⑤	40 ⑥	無効
比較例 2	0 ④	0 ④	10 ⑤	90 ⑥	無効
比較例 3	0 ④	20 ④	30 ⑤	60 ⑥	無効
比較例 4	0 ④	30 ④	10 ⑤	60 ⑥	無効
比較例 5	10 ③	10 ④	30 ⑤	60 ⑥	無効
比較例 6	0 ④	0 ④	20 ⑤	80 ⑥	無効
比較例 7	0 ④	0 ④	50 ⑤	50 ⑥	無効
比較例 8	0 ④	0 ④	10 ⑤	90 ⑥	無効
比較例 9	0 ④	20 ④	0 ④	80 ⑥	無効
比較例 10	0 ④	10 ④	10 ⑤	80 ⑥	無効
比較例 11	0 ④	0 ④	30 ⑤	70 ⑥	無効
比較例 12	0 ④	0 ④	40 ⑤	60 ⑥	無効
実施例 1 ⑨	2 ③	40 ④	20 ⑤	20 ⑥	有効
実施例 2	3 ③	40 ④	20 ⑤	10 ⑥	有効
実施例 3	2 ③	60 ④	0 ④	30 ⑥	有効
実施例 4	5 ③	30 ④	20 ⑤	0 ⑥	有効
実施例 5 ⑩	1 ③	60 ④	10 ⑤	20 ⑥	有効
実施例 6	3 ③	60 ④	10 ⑤	0 ⑥	有効
実施例 7	2 ③	60 ④	20 ⑤	20 ⑥	有効
実施例 8	2 ③	60 ④	20 ⑤	10 ⑥	有効
実施例 9	1 ③	40 ④	0 ④	10 ⑥	有効
実施例 10	2 ③	40 ④	20 ⑤	10 ⑥	有効
実施例 11	1 ③	40 ④	0 ④	30 ⑥	有効
実施例 12	2 ③	60 ④	20 ⑤	10 ⑥	有効

Key:

- 1 Group
- 2 Evaluation of the hair root cessation period ratio (No. of test subjects (%))
- 3 Remarkable effectiveness
- 4 Effectiveness
- 5 Weak effectiveness
- 6 No effectiveness
- 7 Evaluation of the hair-growing effectiveness
- 8 Comparative Example
- 9 Ineffective
- 10 Application Example
- 11 Effective

[0034]

Table 6

群 ①	抜け毛本数の判定 (被験者数 (%)) ②			脱毛防止効 果の評価 ③
	++	+	-	
比較例 1	10	30	15	無効 ④
比較例 2	0	0	15	無効 ⑤
比較例 3	0	10	30	無効 ⑥
比較例 4	0	30	0	無効 ⑦
比較例 5	10	10	15	無効
比較例 6	0	0	25	無効
比較例 7	6	6	37	無効
比較例 8	0	0	15	無効
比較例 9	0	20	15	無効
比較例 10	0	10	15	無効
比較例 11	0	0	5	無効
比較例 12	0	0	25	無効
実験例 1	20	50	15	有効
実験例 2	50	50	15	有効
実験例 3	20	40	0	有効
実験例 4	40	40	25	有効
実験例 5	10	90	1	有効
実験例 6	20	80	1	有効
実験例 7	20	30	25	有効
実験例 8	10	70	25	有効
実験例 9	10	40	45	有効
実験例 10	10	60	25	有効
実験例 11	10	70	25	有効
実験例 12	50	40	5	有効

Key:

- 1 Group
- 2 Evaluation of the number of pieces of lost hair (No. of test subjects (%))
- 3 Evaluation of the hair-loss preventing effectiveness
- 4 Comparative Example
- 5 Application Example
- 6 Ineffective
- 7 Effective

[0035]

Table 7

① 群	平均かぶれ量 (mg)	かゆみ (平均スコア)
④ 比較例 1	17.23	1.4
比較例 2	19.51	1.7
比較例 3	18.95	1.6
比較例 4	18.04	1.6
比較例 5	18.47	1.4
比較例 6	22.06	1.7
比較例 7	20.11	1.7
比較例 8	19.54	1.8
比較例 9	18.83	1.9
比較例 10	16.59	2.0
比較例 11	17.87	1.6
比較例 12	19.24	1.7
⑤ 実験例 1	6.21	0.6
実験例 2	6.51	0.6
実験例 3	6.73	0.6
実験例 4	6.30	0.5
実験例 5	6.50	0.5
実験例 6	6.11	0.8
実験例 7	7.53	0.7
実験例 8	7.56	0.7
実験例 9	7.53	0.9
実験例 10	6.14	0.5
実験例 11	7.31	0.8
実験例 12	6.40	0.6

Key:

- 1 Group
- 2 Average dandruff amount
- 3 Itchiness (average score)
- 4 Comparative Example
- 5 Application Example

[0036]

As shown in Tables 5, 6, and 7, the present invention is excellent in hair-growing effectiveness and hair-loss preventing effectiveness, as well as excellent in dandruff and itch preventing effectiveness.

[0037]

Application Example 13

Lotion

(Blended components)	(wt%)
95% Ethanol	55.0
N,N-Dimethyl-2-decyl tetradecyl amine oxide	5.0
Nicotinamide	0.5
Hinokitiol	0.2
1,3-Butylene glycol	1.5
POE cured castor oil (60 mol added)	1.0
Succinic acid	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved. Furthermore, nicotinamide, hinokitiol, 1,3-butylene glycol, POE cured castor oil (60 mol added), and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, succinic acid and a coloring matter were dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0038]

Application Example 14

Lotion

(Blended components)	(wt%)
95% Ethanol	75.0
N,N-dimethyl-2-decyl tetradecyl amine oxide	0.03
Pantothenyl ethyl ether	5.0
Cephalanthin	0.05
Dipropylene glycol	1.0

POE (24 mol) · POP (13 mol) decyl tetradecyl ether	0.5
Lactic acid	Appropriate amount
Sodium lactate	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved. Furthermore, pantothenyl ethyl ether, cephalanthin, dipropylene glycol, POE (24 mol) · POP (13 mol) decyl tetradecyl ether, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, lactic acid, sodium lactate, and a coloring matter were dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0039]

Application Example 15

Lotion

(Blended components)	(wt%)
95% Ethanol	60.0
N,N-dimethyl-2-decyl tetradecyl amine oxide	20.0
Mononitroguaiacol sodium salt	1.0
Vitamin B ₆	0.5
6-Aminobenzylpurine	0.5
Diisopropylamine dichloroacetic acid	0.05
Polyethylene glycol (400)	0.5
POE cured castor oil (20 mol)	1.0
Phosphoric acid	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, N,N-dimethyl-2-decyl tetradecyl amine oxide was dissolved.

Furthermore, mononitroguaiacol sodium salt, vitamin B₆, 6-aminobenzylpurine, diisopropylamine dichloroacetic acid, polyethylene glycol (400), POE cured castor oil (20 mol),

and a perfume were dissolved (the ethanol portion). On the other hand, phosphoric acid and a coloring matter were dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0040]

Application Examples 13-15 were excellent in the hair-growing effectiveness and the hair-loss preventing effectiveness, as well as excellent in the dandruff and itch preventing effectiveness.

[0041]

Comparative Examples 13-23 and Application Examples 16-27

In the compositions shown in Tables 8-11, one or more of any of oleyl dimethyl amine oxide and isostearyl dimethyl amine oxide was dissolved in 95% ethanol. Furthermore, a follicle activator, dipropylene glycol, a cured castor oil ethylene oxide (50 mol) adduct, malic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was added into purified water and dissolved (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0042]

Table 8

① 配合成分	② 比較例					
	13	14	15	16	17	18
③ オレイルジメチルアミンオキシド	1.0	-	-	-	-	-
イソステアリルジメチルアミンオキシド	-	1.0	-	-	-	-
ニコチン酸アミド	-	-	0.5	-	-	-
ビオチン			-	0.5	-	-
ペントデシルジメチルアミド	-	-	-	-	0.5	-
セブテナンチン	-	-	-	-	-	0.01
モノニトロガラクツール	-	-	-	-	-	-
モノニトロガラコールナトリウム	-	-	-	-	-	-
6-ヘンジルアミノピリジン	-	-	-	-	-	-
ジイソプロピルアミンジクライド			-	-	-	-
ペントデカン酸ナトリウム	-	-	-	-	-	-
ピロビレンジリコート	2.0	2.0	2.0	2.0	2.0	2.0
純化トマト油エキスオキシト (5.0%) 付加物	0.5	0.5	0.6	0.5	0.5	0.5
リコニ酸	適量	適量	適量	適量	適量	適量
ホリ	適量	適量	適量	適量	適量	適量
色素	適量	適量	適量	適量	適量	適量
9.5%エタノール	60.0	60.0	60.0	60.0	60.0	60.0
用意中	未定	未定	未定	未定	未定	未定

Key:

- 1 Blended components
- 2 Comparative Example
- 3 Oleyl dimethyl amine oxide
- Isostearyl dimethyl amine oxide
- Nicotinamide
- Biotin
- Pantothenyl ethyl ether
- Cephalanthin
- Mononitroguaiacol
- Mononitroguaiacol sodium salt
- 6-Benzylaminopurine
- Diisopropylamine dichloroacetic acid
- Pentadecanoic acid monoglyceride
- Propylene glycol

Cured castor oil ethylene oxide (50 mol) adduct
 Malic acid
 Perfume
 Coloring matter
 95% Ethanol
 Purified water
 4 Appropriate amount
 5 Balance

[0043]

Table 9

配合成分①	比 例 例 ②				
	19	20	21	22	23
オレイルジメチルアミノオキシド	-	-	-	-	-
イソステアリルジメチルアミノオキシド	-	-	-	-	-
香料
ココヤニク酸アミド	-	-	-	-	-
グリセリン			-	-	-
メントホルモキスカルボン酸	-	-	-	-	-
ジクセチン	-	-	-	-	-
セスキテロノラクトン	0.5	-	-	-	-
セスキテロノラクトンカーボン酸ナトリウム	-	0.5	-	-	-
オレインジメチルアミノオキシド			0.5	-	-
ジメチロビニルアミノジカルボン酸	-	-	-	0.5	-
ベンタデカン酸ジメチル	-	-	-	-	0.5
イコピレンジカルボン	20	20	20	20	20
硬化ヒマン油ジカルボンオキシド	0.5	0.5	0.5	0.5	0.5
(50%水)付加物					
水	適量	適量	適量	適量	適量
香料	適量	適量	適量	適量	適量
色素	適量	適量	適量	適量	適量
95%エタノール	600	600	600	600	600
用気水	既定	既定	既定	既定	既定

Key: 1 Blended components
 2 Comparative Example
 3 Oleyl dimethyl amine oxide
 4 Isostearyl dimethyl amine oxide

Nicotinamide
Biotin
Pantothenyl ethyl ether
Cephalanthin
Mononitroguaiaacol
Mononitroguaiaacol sodium salt
6-Benzylaminopurine
Diisopropylamine dichloroacetic acid
Pentadecanoic acid monoglyceride
Propylene glycol
Cured castor oil ethylene oxide (50 mol) adduct
Malic acid
Perfume
Coloring matter
95% Ethanol
Purified water
4 Appropriate amount
5 Balance

[0044]

Table 10

① 配合成分	② 実施例					
	16	17	18	19	20	21
③ オレイルジメチルアミンオキシド	1.0	-	2.0	-	3.0	-
イソステアリルジメチルアミンオキシド	-	2.0	-	1.0	-	2.0
ニコチン酸アミド	0.3	-	-	-	-	-
ビオチン	-	0.3	-	-	-	-
パントテニルエチルエーテル	-	-	0.1	-	-	-
セピタクサンチン	-	-	-	0.001	-	-
モノニトロガラヤコール	-	-	-	-	0.6	-
モノニトロガラヤコールナトリウム	-	-	-	-	-	0.1
6-Benzylaminopurine	-	-	-	-	-	-
ジイソプロピノカルボンジカルボン酸	-	-	-	-	-	-
ペンタデカニルモノグリセリド	-	-	-	-	-	-
イソブレニンゲリコール	2.0	2.0	2.0	2.0	2.0	2.0
酵母・マンナンエシシンオキシド	0.5	0.5	0.5	0.5	0.5	0.5
(±)セルビ酸	適量	適量	適量	適量	適量	適量
香料	適量	適量	適量	適量	適量	適量
色素	適量	適量	適量	適量	適量	適量
6-Propylene glycol	60.0	60.0	60.0	60.0	60.0	60.0
用法	内用	内用	内用	内用	内用	内用

Key:

- 1 Blended components
- 2 Application Example
- 3 Oleyl dimethyl amine oxide
- Isostearyl dimethyl amine oxide
- Nicotinamide
- Biotin
- Pantethenyl ethyl ether
- Cephalanthin
- Mononitroguaiacol
- Mononitroguaiacol sodium salt
- 6-Benzylaminopurine
- Diisopropylamine dichloroacetic acid
- Pentadecanoic acid monoglyceride
- Propylene glycol

Cured castor oil ethylene oxide (50 mol) adduct
 Malic acid
 Perfume
 Coloring matter
 95% Ethanol
 Purified water
 Appropriate amount
 Balance

4
 5

[0045]

Table 11

① 配合成分	実施例						②
	22	23	24	25	26	27	
③ オレイルジメチルアミノオキシド	1.0	-	3.0	-	1.0	-	
イソステアリルジメチルアミノオキシド	-	1.0	-	1.0	1.0	2.0	
水	-	-	-	-	-	-	
ヒコイン酸アリコノ	-	-	-	0.2	-	-	
ビタミン	-	-	-	-	-	-	
パントテン酸アリコノ酸	-	-	-	0.2	-	0.5	
セツキナイト	-	-	-	-	0.01	-	
セテアリルジメチルアミノオキシド	-	-	-	-	-	-	
セテアリルジメチルアミノオキシド	-	-	-	-	-	-	
セテアリルジメチルアミノオキシド	-	-	-	-	-	-	
セテアリルジメチルアミノオキシド	-	-	1.0	-	-	-	
プロピレングリコール	2.0	2.0	2.0	2.0	2.0	2.0	
純化水溶性アクリル酸	0.5	0.5	0.5	0.5	0.5	0.5	
10%水溶液	-	-	-	-	-	-	
水	100	100	100	100	100	100	④
pH	7.0	7.0	7.0	7.0	7.0	7.0	
色素	少量	少量	少量	少量	少量	少量	
95%エタノール	600	600	600	600	600	600	
精製水	微量	微量	微量	微量	微量	微量	⑤

Key: 1 Blended components
 2 Application Example
 3 Oleyl dimethyl amine oxide
 4 Isostearyl dimethyl amine oxide

Nicotinamide
Biotin
Pantothenyl ethyl ether
Cephalanthin
Mononitroguaiacol
Mononitroguaiacol sodium salt
6-Benzylaminopurine
Diisopropylamine dichloroacetic acid
Pentadecanoic acid monoglyceride
Propylene glycol
Cured castor oil ethylene oxide (50 mol) adduct
Malic acid
Perfume
Coloring matter
95% Ethanol
Purified water
4 Appropriate amount
5 Balance

[0046]

By using the samples of Comparative Examples 13-23 and Application Examples 16-27 mentioned previously, the hair-growing effectiveness test, the hair-loss preventing effectiveness test, and the dandruff and itch preventing effectiveness test described previously were carried out, and they were evaluated. The results are shown in Tables 12, 13, and 14.

[0047]

Table 12

①	② 毛根付止葉率の判定 (被験者数 (%))				⑦ 毛毛効果の評価	
	頭髪なき率	効果あり	弱い効果	効果なし		
比較例 13	0	③ 30	④ 40	⑤ 30	⑥ 60	無効 ⑩
比較例 14	1	10	30	60		
比較例 15	0	10	10	80		
比較例 16	0	10	20	70		
比較例 17	0	0	20	80		
比較例 18	0	0	30	70		
比較例 19	0	10	20	70		
比較例 20	0	10	10	80		
比較例 21	0	0	20	80		
比較例 22	0	10	10	80		
比較例 23	0	20	10	70		
実験例 16	2	60	30	10	有効	⑨
実験例 17	2	20	40	20	有効	
実験例 18	2	40	30	10	有効	
実験例 19	3	60	20	10	有効	
実験例 20	4	60	20	0	有効	
実験例 21	4	20	30	10	有効	
実験例 22	3	20	40	10	有効	
実験例 23	4	40	10	10	有効	
実験例 24	3	20	20	20	有効	
実験例 25	4	10	10	0	有効	
実験例 26	2	60	10	10	有効	
実験例 27	3	60	10	10	有効	⑪

Key:

- 1 Group
- 2 Judgment of the number of pieces of lost hair (No. of test subjects (%))
- 3 Remarkable effectiveness
- 4 Effectiveness
- 5 Weak effectiveness
- 6 No effectiveness
- 7 Evaluation of the hair-loss preventing effectiveness
- 8 Comparative Example
- 9 Application Example
- 10 Ineffective

11 Effective

[0048]

Table 13

N ①	抜け毛本数の測定 (被験者数 (%))				成毛防止効 果の評価 ③
	++	+	*	-	
比較例 13	10	20	20	30	無効
比較例 14	20	10	10	60	無効
比較例 15	0	10	10	80	無効
比較例 16	0	0	20	80	無効
比較例 17	0	10	20	70	無効
比較例 18	0	20	10	70	無効
比較例 19	0	0	30	70	無効
比較例 20	0	20	0	80	無効
比較例 21	0	10	20	70	無効
比較例 22	0	20	10	70	無効
比較例 23	0	20	0	80	無効
実験例 16	40	20	20	10	効果
実験例 17	50	30	20	20	効果
実験例 18	50	40	20	10	効果
実験例 19	50	20	20	0	無効
実験例 20	50	30	20	20	効果
実験例 21	50	50	20	0	無効
実験例 22	40	30	20	10	効果
実験例 23	50	40	20	0	無効
実験例 24	50	60	20	10	効果
実験例 25	50	50	20	20	効果
実験例 26	40	20	20	10	効果
実験例 27	40	30	20	0	無効

Key: 1 Group

2 Judgment of the number of pieces of lost hair (No. of test subjects (%))

3 Evaluation of the hair-loss preventing effectiveness

4 Comparative Example

5 Application Example

6 Ineffective

7 Effective

[0049]

Table 14

①	②	③
目	平均かみ量 (mg)	かみみ (平均スコア)
比較例 13	1.2	1.4
比較例 14	1.4	1.6
比較例 15	1.7	2.0
比較例 16	1.8	1.5
比較例 17	2.1	1.9
比較例 18	1.8	1.5
比較例 19	1.7	1.5
比較例 20	2.1	1.7
比較例 21	2.1	1.8
比較例 22	1.8	1.7
比較例 23	1.5	2.1
実施例 16	0.5	0.5
実施例 17	0.4	0.5
実施例 18	0.4	0.5
実施例 19	0.5	0.5
実施例 20	0.4	0.3
実施例 21	0.7	0.7
実施例 22	0.4	0.6
実施例 23	0.7	0.5
実施例 24	0.7	0.4
実施例 25	0.7	0.6
実施例 26	0.7	0.7
実施例 27	0.7	0.6

Key:

- 1 Group
- 2 Average dandruff amount
- 3 Itchiness (average score)
- 4 Comparative Example
- 5 Application Example

[0050]

As shown in Tables 12, 13, and 14, the present invention is excellent in hair-growing effectiveness and hair-loss preventing effectiveness, as well as excellent in dandruff and itch preventing effectiveness.

[0051]

Application Example 28

Lotion

	(wt%)
(Blended components)	
95% Ethanol	55.0
Oleyl dimethyl amine oxide	2.0
Nicotinamide	0.1
Glycerol	1.0
Cured castor oil ethylene oxide (40 mol) adduct	0.5
Malic acid	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, oleyl dimethyl amine oxide, nicotinamide, glycerol, cured castor oil ethylene oxide (40 mol) adduct, malic acid and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0052]

Application Example 29

Lotion)

	(wt%)
(Blended components)	
95% Ethanol	65.0
Isostearyl dimethyl amine oxide	3.0
Pantthenyl ethyl ether	5.0
Cephalanthin	0.01
Biotin	0.2
Dipropylene glycol	5.0
Cured castor oil ethylene oxide (50 mol) adduct	0.5
Malic acid	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, isostearyl dimethyl amine oxide, pantothenyl ethyl ether, cephalanthin, biotin, dipropylene glycol, cured castor oil ethylene oxide (50 mol) adduct, malic acid, and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0053]

Application Example 30

Lotion

(Blended components)	(wt%)
95% Ethanol	50.0
Oleyl dimethyl amine oxide	2.0
Isostearyl dimethyl amine oxide	2.0
Mononitroguaiacol	0.1
6-Benzylaminepurine	0.001
Diisopropylamine dichloroacetic acid	0.5
1, 3-Butylene glycol	2.0
Cured castor oil ethylene oxide (60 mol) adduct	0.7
Succinic acid	Appropriate amount
Perfume	Appropriate amount
Coloring matter	Appropriate amount
Purified water	Balance

Preparation method

In 95% ethanol, oleyl dimethyl amine oxide, isostearyl dimethyl amine oxide, mononitroguaiacol, 6-benzylaminepurine, diisopropylamine dichloroacetic acid, 1,3-butylene glycol, cured castor oil ethylene oxide (60 mol) adduct, succinic acid and a perfume were dissolved (the ethanol portion). On the other hand, separate from this, a coloring matter was dissolved in purified water (the water portion). This water portion was added to the ethanol portion and stirred to obtain a transparent liquid lotion.

[0054]

Application Example 31

Emulsion

(Blended components)	(wt%)
(1) Cetanol	1.6
(2) Stearic acid	1.3
(3) Palmitic acid	0.5
(4) Liquid lanolin	1.0
(5) Squalane	2.0
(6) Monostearic acid glyceryl	1.7
(7) POE sorbitan monostearate	0.5
(8) Isostearyl dimethyl amine oxide	0.5
(9) Oleyl dimethyl amine oxide	0.5
(10) Pentadecanoic acid monoglyceride	1.0
(11) Mononitroguaiacol sodium salt	0.3
(12) Polyethylene glycol	5.0
(13) Triethanolamine	1.0
(14) Purified water	Balance

Preparation method

Components (1)-(11) were mixed to obtain a mixture. On the other hand, separate from this, components (12)-(14) were mixed to obtain a mixture. The respective mixtures were heated separately to 70°C. After dissolution, they were mixed and emulsified with an emulsifying machine. By heat-exchange cooling, an emulsion was obtained.

[0055]

Effect of the invention

The scalp and hair cosmetic material of the present invention has excellent hair-growing effect and hair-loss preventing effect, as well as being excellent in dandruff and itch preventing effect.

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